

ChainLink

Chainlink is a project in the blockchain space aimed at creating a decentralized and trustless network of oracles for use in the execution of smart contracts. The network value is held in the LINK token. It has done everything it can to avoid hype during development. This has been a negative for the project's current public visibility, but is a necessary portion of its partner's path to implementation. Add to this a knowledgeable community of blockchain investors who actively spread misinformation about the project and you have the most important, unique and interesting project in all of blockchain.

Conclusion first:

Chainlink is as fundamental to blockchain as Google is to the Internet.

ChainLink is a project driven by a team with fintech and blockchain industry experience and has secured a monopoly on the most important aspects of the real world-blockchain interface. It has a significant first-mover advantage which the team and their partners are actively seeking to obscure until main net launch.

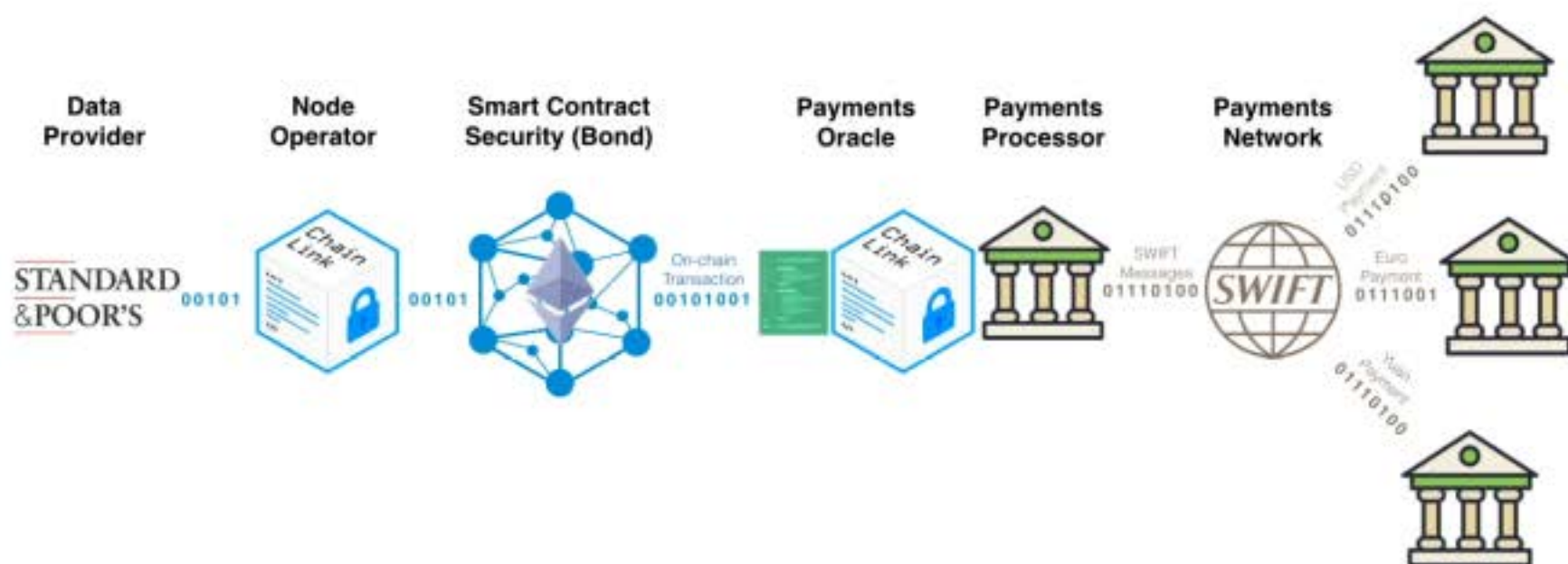
Even within experienced crypto investors (and really all crypto "celebs") much of what Chainlink *actually is* has not been understood much less discussed. It is admittedly a tough concept to understand, even for those well versed in blockchain. Right now the asset (the ERC-677 token LINK) is held by early investors and a few enthusiastic researchers who have found the project despite a near complete lack of publicity. As the asset is held on a blockchain, trades between wallets are public. The current price action is in small value wallets; the top wallets have bought and held.

The most obvious application of blockchain is value transfer. This represents a marginal improvement over existing bank transfers in terms of time and cost. To stop there is a mistake. Saying that blockchain's main application is value transfer is like saying that the internet should be used mainly for email. The true killer application is radically reforming the way fiscal transactions occur through end-to-end trustless smart contracts.

The importance of an end-to-end trustless business environment cannot be overstated. This refers to a state where two parties can make a deal and, if the terms of the deal are met, the payment is automatically executed without any party trusting the other to actually follow through. In the business world, a large amount of money and effort is spent ensuring trust by drafting contracts, researching business partners and litigating transaction failures. A large business may have a profit margin of 3% and have 2-15% of their costs spent on contract work, regulation compliance and trust assurance. Eliminating some or all of that cost would be profound. Moreover, the overall business environment would allow for easier entry and improved efficiency. In a trustless environment there is no fiscal upside for even intentional bad actors; they would be forced then to make a decision: engage in honest business practices or exit the market.

The blockchain side of smart contracts is well established with public platforms like Ethereum; the more complex problem is how to use existing financial and data infrastructure to facilitate the use of real-world assets and data in smart contracts. While many in the crypto community are looking for a radical reformation of finance, this will not happen for one simple reason: the state has a monopoly on both taxation and fiat currency. So long as that exists in all major societies, corporations and high net worth individuals must use fiat currency and traditional banking infrastructure. The only guarantees in life are death and taxes. The IRS doesn't accept crypto.

So how do you square this circle? Enter Chainlink.



Here's an example of what is possible: A business interacts with a supplier and agrees on a purchase of goods or services. A smart contract is written using a kit like Zeppelin_OS (a Chainlink partner) which by default uses blockchain to make the agreement public and immutable and Chainlink to access real world data and APIs. It is made legally binding by a digital signature via DocuSign (a Chainlink partner) which green lights the smart contract via DocuSign's Chainlink node. The funds in the business's account are verified in a secure, private manner via Intel SGX (a Chainlink partner) and the banking consortium's default messaging service, SWIFT's, Chainlink node (also a Chainlink partner) and frozen for the contract duration by SWIFT's API via Chainlink. The work is completed and tracking information for the goods from SAP (a Chainlink partner) via a chainlink node allows for progressive unlocking of good-faith milestone payments (again processed via SWIFT through Chainlink). Once the supplier is finished, they certify that they have delivered via the DocuSign API which activates the final payment escrow. If the receiving business is satisfied with the product delivered, they sign off via their chainlink node and the funds are transferred to the supplier. If there is a dispute, there is a network of third party agents, all ranked on reputation in the chainlink network who are integrated as part of the smart contract kit and are able

to deliver the payment or a partial payment to the correct party per the terms of the smart contract.

If the contract dictates, the results of this interaction are permanently visible to the blockchain and so any future business partner of either entity can make an informed decision about future business interactions with either party. At every step each participant is incentivized to act in an honest manner as dishonest or malicious behavior is financially unfavorable to the actor. For example, nodes must stake Chainlink tokens to receive jobs; if they provide incorrect information, the party harmed by this information is awarded a penalty which can be outlined in the terms of the smart contract. This allows businesses and individuals who have no prior history and no reason to trust one another to do deals which generally carry only upside and which are not worth pursuing unless all participants intend to act in a forthright manner.

Claims like these should be met with skepticism, especially in the crypto space. The below is the result of months of research. I would encourage you to verify everything I've said and to also read closely the section about intentional investor misinformation.

I am an investor and want my investment to do well. I personally stand to gain if many of the advantages of a true end-to-end trustless business environment can be achieved as it would save my interests money and save me hassle. I believe personally in the project and would like as many thinking investors as possible to be a part of supporting it.

See what is verifiable and what is not. The timing of this information is not pressing: prices for LINK will likely remain low (as of Q2 2018) while the project is in test net. Most money in crypto is influenced by things like hype, tweets, "partnership" announcements and asset class aspects that are not actually correlated with asset value. Chainlink will have none of these drivers for at least the next few months. When the Chainlink main net launches there will be a number of users and partnerships announced, but I don't anticipate the most important product roll outs until Q4 2018 through Q2 2019. These are large enterprise projects that *require* the Chainlink network to function and will be what solidifies Chainlink as the default resource for real-world smart contract oracle uses for data and API access. Every investor in the space deserves an honest overview of such an interesting project, unclouded by insiders who actively obfuscate what Chainlink is and what it is aiming to accomplish.

Origins of the project

The ICO for the project was difficult to join and had minimal advertising. A 300 ETH minimum presale and a 100 ETH minimum ICO kept out most individual crypto investors. Despite this, it sold out within five minutes. Small investors had to form pools in order to participate. This is indicative of a larger trend in the project, in that it was initially bought, and continues to be generally held by experienced investors with large amounts of working capital.

The team is young, experienced and has participated in this scale of project previously, from both the entrepreneurial and venture capital sides. Sergey Nazarov, the CEO, has a VC background and has hired top notch business development and coding talent (Kochis, Ellis, Roche, Hodges). This is in contrast to blockchain projects which build a product and then go about finding customers. Chainlink is being built from the ground up for established customers by a group with intimate knowledge of what large enterprise needs and what they will tolerate in a high value project.

Interestingly, the ChainLink team did not seek out token listing on exchanges. The fact that the value asset is on the ETH blockchain allowed Binance to list the project in its early days. The exchange was not a result of the team seeking liquidity, it was a result of them not being able to prevent it. Many of the smaller investors who were never intended early participants in this network are now LINK holders only because of the transferability of blockchain assets. Consider how that contrasts with many crypto projects aggressively seeking liquidity and what that means about how they view the long term prospects of their networks.

Another interesting origin tidbit that informs the project: ChainLink is traded like an ERC-20 token and can be held in ERC-20 compliant wallets, but it is in fact an ERC-677 token, the first and only of its kind. This class was created by one of the Ethereum coders on the team, Steve Ellis, by adding the transfer and call functionality and integrated by the Ethereum foundation. Most projects in the crypto space would make a major announcement about having the premier blockchain for smart contracts create an asset class specifically for them, but Chainlink has not.

Unannounced partnerships

In a crypto landscape that is rife with over-hyped under delivering projects, Chainlink intentionally flies under the radar. The project leads have explicitly stated that Chainlink is being built for large customers who require a clean, working product without social media buzz. The reason for this is simple when looking into the partnerships: major corporations will be using Chainlink, either alone or in combination with their own blockchain projects, as a sale-able product (for an example, see Microsoft's Bletchley Cryptlets using Intel's SGX). This ensures significant muscle behind Chainlink adoption in exchange for partner's ability to brand and vend the product as they please.

Chainlink is aware of this status and leaves the entirety of partnership announcements to the partners themselves. Chainlink has stated publicly that they and Smartcontract will not announce partnerships. The below is based on much research into the people working on the project, publicly acknowledged use of protected logos and public statements by the team, especially in the early stages of the project before they became more tight-lipped. Another tactic that has been used on most of the below cases is reporting the use of the logo by Smartcontract to the corporation and asking if they are aware. In general this has resulted in a standard boilerplate answer that partners are allowed limited use of their logo for development purposes. For example: if a

corporation is lending Chainlink a software developer, has announced a project that utilizes the chainlink network for oracle pulls and has publicly acknowledged that they are aware of Smartcontract using their logos, I consider that a partnership. Such a partnerships will likely not be announced formally until the launch of a final branded product by the partner corporation.

SWIFT

The most important partnership Chainlink has is with SWIFT, the monetary messaging collective used by nearly all banks. Chainlink has been invited as a presenter at SIBOS annually and has been public with their proof of concept with both sides reporting positive results thus far. The more important aspect of this partnership is the monopoly it gives Chainlink for business to business use cases. For nearly all major business, payment settlement is done via banks and bank accounts. While some businesses may be amenable to using crypto assets to pay for goods and services, most are not and, more importantly, many will not because of regulatory concerns. For this reason the only end-to-end use case for smart contracts must involve legacy banking systems and SWIFT has given Chainlink the only DLT opportunity in this space. No other blockchain interface will be able to interact with SWIFT APIs, and by extension, no other project is likely to have the ability to check balances at SWIFT member banks (a critical check for the initiation of smart contracts), lock smart contract funds and trigger bank-based smart contract payments. In other words, if Chainlink doesn't work, high value smart contracts will be unlikely to work for the foreseeable future.

One side note that does not really benefit Chainlink but does inform the motives behind SWIFT's use of Chainlink: politically within banking there is a push to allow for open banking frameworks. The clearest of this is payment services directive 2 (PSD2) which directs banks to open their APIs and allow new fintech groups to provide third party services to customers. This would seem to be a loss of consolidated power within the banking industry, however there is a silver lining. Data and API providers within the Chainlink network are reimbursed for data and API calls. For publicly available, widely distributed data, these calls will likely be inexpensive with multiple nodes competing to offer these services. For closed APIs, however, these access points would be valuable if they could be monetized. This allows an existing bank consortium (SWIFT) to protect their interests by being in on the ground level for the critical access layer for smart contracts, all while externally being able to say they are in compliance with regulators open banking directives.

Zeppelin_OS

This is the front end kit for enterprise users and developers of Ethereum based smart contracts which allows for the use of modular, secure smart contract code for individual and business use. Zeppelin_OS has confirmed that Chainlink will be integrated at the kernel level. This means that all smart contracts generated by Zeppelin_OS will by default use the Chainlink network for obtaining off-chain data, even if the author has

never heard of Chainlink. A similar framework is present in many enterprise applications of Chainlink.

Microsoft

Microsoft, like IBM, is putting together a suite of blockchain applications for its clients. Similar to IBM, Microsoft is investing significant time and resources into having enterprise blockchain solutions available for its large corporate clients. One concern that such clients have is exposure of their and their customer's data. Sergey stated in one of his early talks at the NYC Ethereum enthusiasts meeting that Chainlink is working with Microsoft's Bletchley cryptlets, their enterprise solution for blockchain applications. Of note, this requires interaction with permissioned blockchain (a major part of Microsoft's blockchain offering) and thus would require either an in-house oracle network or interaction with an existing, decentralized oracle network which is blockchain agnostic. On inspection of publicly available cryptlet code, the JSON schema for cryptlets happen to be identical to the Chainlink JSON adapter. Microsoft enterprise smart contract spokesperson Marley Gray stated publicly that enterprise users are eager to develop in this environment and are awaiting the release of this suite of applications. This would seem to mesh with the fact that Microsoft Azure developer Aleksey Klintsevich has been assisting with Chainlink's code.

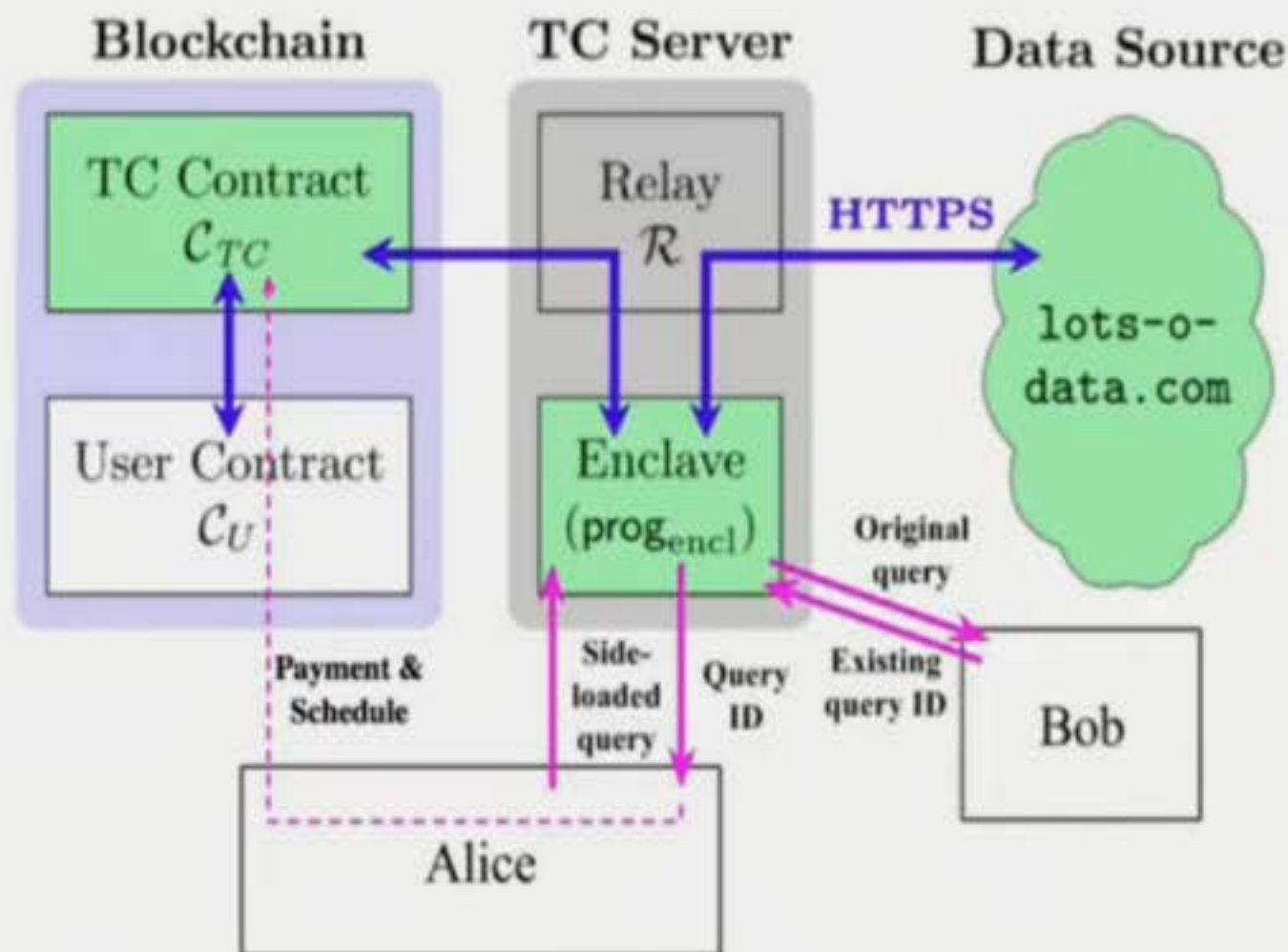
AXA

AXA has been a longtime development partner of Chainlink. They completed a proof of concept with Smartcontract.com using their in house smart contract service. AXA has issued a flight insurance product called Fizzy using automatic payments powered by smart contract. Flight data to activate the smart contract currently interact with the blockchain via centralized web APIs. In their recent product update, they highlighted the use of an aggregated oracle solution as critical for the project going forward. Use of Chainlink would also allow access to payment APIs including those from HSBC, Chase, SWIFT, Wells Fargo, Citi, Paypal, VISA and Mastercard.

Intel

The chipmaker has taken major interest in the use of smart contracts and now offers a protected hardware environment which allows for sensitive data to be used, with verification of correct computation, in a trusted environment. Intel calls this offering SGX and it is a part of Microsoft's Blechtley cryptlet offering. This is a relatively new offering going public, but take a look at the Chainlink whitepaper which, contains discussion of this offering from a development partner's perspective. For more information about Intel's SGX and Chainlink please see the videos listed below.

Verifying the Side Loaded Queries from SGX



SAP and Salesforce

SAP and Salesforce offer enterprise backends and are both present in schematics used by Smartcontract. John Barker has recently started making commits on the project. Salesforce is betting big on the API economy with their recent acquisition of Mulesoft for \$6b. If there are any enterprises that understand the concept of the coming API economy (“the new oil”) it is backend providers like these two.

DocuSign

Tom Gonser has spoken publicly on panels with Sergey at SXSW and interacted with him on social media. These interactions, at least on their surface, have appeared very positive. Part of the packaged product Smartcontract will be selling to enterprise is an interface to use legally binding contracts and DocuSign is the industry leader in this respect.

Tesla

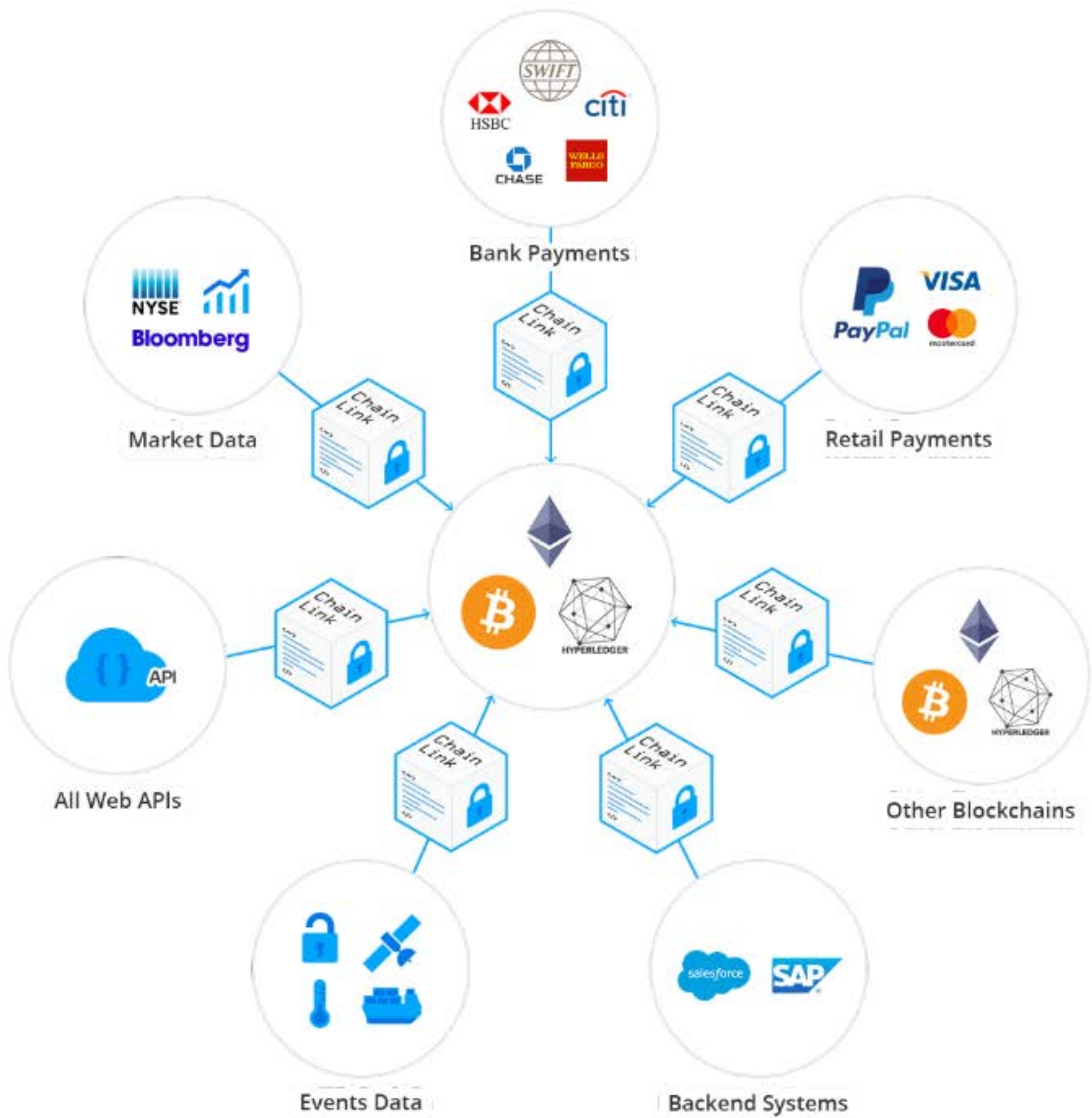
While the above partnerships have readily verifiable information, this one is far more questionable. This partnership speculation arose from a few pieces of information that may or may not be tied together. A developer named Jordan Bonilla made contributions to the project which led some investors to contact him as his linkedin page stated he still worked at Tesla. This was confirmed and it was around the same time that Tesla had hinted at using blockchain to allow for a real-world data driven insurance platform for Tesla drivers (as Tesla model S owners pay the highest insurance premiums of all consumer car owners). Taking data that Tesla cars already generate and interfacing this with blockchain based smart contracts would constitute a dynamic, risk adjusted insurance model and would require the use of Chainlink to facilitate the interaction.

Other partnerships

The above are the low hanging fruit; there are more partially and fully disclosed development partners of Chainlink than can be contained in this document. Searching through the team's code comments and developers who have interacted with Chainlink, can unearth a lot. There is a common infographic circulated within Chainlink investment groups that points out a large number of the other not-so-well-hidden partners (HSBC, Citi, Fidelity, Sony, Accenture, Request, Mulesoft, Salesforce, Walmart, Chase, etc.) if you are interested in further research and digging.

A side note about partnerships:

One thing to note about the above is that many are well-known large corporations. US (where Smartcontract/Chainlink is based) trademark law allows non-consensual use of trademarked logos where a reasonable observer would not imply a relationship. For example, a news crew reporting on a Starbucks would not be assumed to have a partnership with Starbucks. A restaurant displaying the Starbucks logo on their storefront would. Look at the Smartcontract website and ask whether a reasonable observer might imply a relationship. Then ask if Smartcontract is using those logos with permission from their partners or not.



Why Chainlink?

Chainlink is commonly viewed to have multiple competitors in the space. In a basic sense this is true: there are other projects that either in part or as a main focus aim to bring off chain data on chain. On further inspection, however, there are no viable competitors for Chainlink for the vast majority of customers who stand to gain the most through the use of smart contracts. Specifically, in order for a project to be a true competitor to Chainlink (and be a viable option for high value transactions in the B2B and B2I spaces) that project must have:

- Access to banking infrastructure and APIs not only in the sense of publicly available banking data like bond rates, but also in the institutional sense of allowing the network, in secure fashion, access to APIs that can trigger fiat payments, check account balances and execute ownership transfers. In Chainlink's case this is the involvement of SWIFT and major banks as ground level development partners.
- Involvement of a trusted data environment which allows for the use of, but not disclosure of, highly sensitive data in the operation of smart contracts. In Chainlink's state this is their development of and use of SGX technology.
- A trust mechanism that incentivizes all participants in the network to behave in an active, trustworthy manner when providing data feeds and API access; this must be done in a way in which even an intentional bad actor has no incentive to participate. In Chainlink's case this is value transfer asset LINK the act of nodes staking LINK.

When viewed with the above understanding, there is no other oracle project that represents a viable competitor. As an exercise here are other projects that have stated they will bring oracles to blockchain and a brief overview of their current hurdles to real-world utility.

Oraclize

This project is the classic centralized oracle. As discussed above, this may have some applications in low value transactions (think sports betting) but is not acceptable to business institutions for the above reasons. Add this to the fact that they have experienced significant difficulties with uptime and data integrity. The ETHorse project has a recent post where they are awaiting the launch of Chainlink to switch from Oraclize because of these concerns, and ETHorse is the exact kind of project that would receive the minimum marginal utility of using a decentralized oracle network versus a centralized one.

Augur

This exists, at current, as a section within a white paper as to the intent to create oracles. I have yet to see node, consensus, aggregation or validation approaches or code put forth by the team.

Zap

This is a similar project to Oraclize and does not contain framework for data security, fiat transfer partners or really anything other than a way to package publicly available data feeds for use in smart contracts. While this may have some applications for situations not involving the use of trusted data or fiat value systems (for example, on

chain gambling), it does not represent a viable solution for business that has access to trusted data or requires the use of APIs.

Mobius

Mobius is the Stellar Lumens linked dapp network provider and potential oracle network. Originally, I thought this would be the main competitor to Chainlink, however it appears this will not be the case. Stellar allows for limited smart contracts via a simple, Turing incomplete language and a proprietary oracle network would have some value for their main application (cross border payments with automatic value exchange routing). Most development from Mobius now has centered on creating a dapp marketplace and being the default token for use in dapps on Stellar. This is a reasonable business case, but not a competitor to Chainlink at current. This is also interesting to me from an intra-personal perspective; Jed is the definition of an industry insider and understands everything the Ethereum alliance is doing. There appears to be a “carving out” of territory where Ethereum is actively avoiding the use case of value transfer while Stellar is avoiding at least the high end use cases of smart contracts.

The necessity of decentralization

A common question about Chainlink is that of the necessity of decentralization. Indeed data APIs can be cryptographically signed to ensure authenticity and there are a number of trusted data sources in use today. In the sense of bringing real-world data to the blockchain this is true, however in a larger sense of presenting a usable product that could achieve real-world cost savings, this is generally untrue. There are usually two arguments made to address why the network must be decentralized. The most important one (the latter one here) is actually by far the most important for the entire DLT space.

Simple argument: A commonly cited reason why the network must be decentralized is that it offers all the advantages inherent in decentralized networks, namely that it will be highly resilient and that it can avoid a central bad actor from improperly executing a smart contract. Oraclize, a centralized oracle service, has has multiple well publicized issues with uptime and data delivery and a decentralized network would by default have little to no downtime.

Complex argument: In order for an oracle network to have value it must be usable for the customers with the most to gain through the implementation of smart contracts. It also must offer existing enterprise with valuable APIs and data feeds a reason to participate in a manner that is safe for them and their customers. In general these entities (large business, high net worth individuals, wealth management groups, insurers etc.) have proprietary data that cannot be publicly shared but also must be used in the execution of a smart contract. An example would be the querying of a bank account balance to ensure it is above a certain balance cannot also reveal the actual bank balance to the smart contract (which is by definition public, immutable and trustless). Because of this, in order for relevant entities to be comfortable, trusted data

environments must be available and no single entity can be in a position to be coerced or acquired to reverse this. No single agent can exist that can demonetize a valuable API or data feed. Any centralized agent would then be at risk of compromising this state (see recent large “trusted” agency leaks of sensitive customer and consumer data). A decentralized network is then necessary for the relevant entities to participate.

Vigilant early investors and misinformation

Two groups are invested in this project at current: early experienced investors (those who are in the top wallet holders) and avid blockchain enthusiasts who have contributed to much of the above research. The latter group does not want any real information shared about this project as they are typically smaller investors looking to put personal money into the project prior to it being publicized. There is also, among this group, a generalized disdain for people who don’t dig as deep as them and they want to keep normal investors from knowing about this project during the time when it offers the most upside.

To further explain, this group of investors will bombard any real information given to mainstream investing sites with negative comments and incorrect information. This is compounded by the team’s low PR stance. From an ethical standpoint they feel that if investors are so helpless that they can’t see through obviously false information, then they don’t deserve Chainlink. I can’t say I fully disagree with them, however at this point the potential overall benefits of the success of the project outweighs their desire to maximize their upside.

Examples of misinformation:

- Comments about Chainlink being “only an ERC-20 token” are common and are a running tongue-in-cheek joke. Indeed there have been many vaporware ERC-20 projects built on seemingly hype alone. The reason for this is twofold: for the ChainLink network to operate it must have a native asset with the transfer and call functionality (which ERC-20 does not have). Having a special functionality added to their ETH token (and creating a totally new asset class in so doing) would, for any other project, be a huge selling point: “look how important we are in that Ethereum made a special asset class for us because our project is so fundamentally important to the entire smart contract space.” Of course, the team has kept this quiet, but calling ChainLink an ERC-20 token is not only factually incorrect, but also it requires the reader to lack a simple piece of information about the project. This serves the goal of keeping investors who won’t conduct their own research out.

- Similarly, a common joke about Chainlink is that it will be brought down by Ethereum network congestion or “can be stopped by Cryptokitties.” This, again, requires the reader to have a fundamental misunderstanding of the project. The asset, LINK, uses the Ethereum network but Chainlink is a network in and of itself with nodes and reputation providers providing the backbone. Chainlink is network agnostic and will

launch with Ethereum, Bitcoin and Hyperledger adapters operational, allowing the Chainlink network to provide external data natively to those blockchains and allowing customers to choose if they would prefer a public blockchain or a permissioned one. Additional blockchains only require software adapters, so realistically any network which can support smart contracts can use Chainlink as the sole real-world interface. Moreover, the development kits for these networks (including Zeppelin_OS) will natively incorporate Chainlink, so often smart contract creators will be using and paying for the Chainlink network by default without knowing it.

A related piece of information came up in clarifying this point: a blog performed a code review of the Chainlink project. This blog has since been suspended but archived versions can be found by searching for “code review Chainlink.” This review contained some negative points that were factually incorrect (they cited lack of timezone interoperability as a concern when all times were by default GMT and they completely missed the finished coded adapters, falsely concluding, as above, that the network was dependent on Ethereum). In general in early stage business the rule is that detractors who voice opinions should be ignored (as they cannot be outright refuted and addressing them generally brings them more attention) and detractors who state factually incorrect information about a project must be promptly and directly addressed. Chainlink’s team was made aware of this code review, quietly acknowledged that there were multiple factual inaccuracies in it and then said that they were just happy that more people were interested in the space. This means one of two things. Either the Chainlink team, comprised of respected developers and a CEO with VC experience, is completely naive or that all of the critical partnerships are already established. This would imply that maintaining a low profile to preserve existing partnerships is more important than maintaining image for the development of new partnerships.

- Early comments centered around a “two man” developer team. These comments were easily disproved by examining the branches of the teams github (which, to be fair, is linked publicly both at the main reddit subforum and on the team’s web page). Currently there are eight developers making active contributions to the project and a number of others who have contributed specific code pieces including those on loan from industry partners.

- Comments about Sergey’s being unreachable or having given up on the project were and are also easily disproved but would require the use of the teams’ slack or gitter (which again, to be fair, only require you to email the team and ask for access) to interact with him. Slack and gitter are well known in software development circles but infrequently used outside of them. This line of comment essentially was designed to weed out normal investors who expect project updates via twitter. Ironically Rory and Sergey both gave well reasoned arguments as to why they prefer those over twitter, but again, that would require the reader to do some work.

- Comments about Chainlink being forked, shadow forked, or the project ditching the LINK token for just using ETH or Tether rely on the reader not understanding the

functionality of the ERC-677 token and not understanding the concept of open source development. These comments are good at scaring away uninformed investors, but fail even the most basic logical tests. For example, right now you can “fork” the bitcoin blockchain and give yourself all of the coins; this will not, however, make you a billionaire.

- The other avenues of comment all include the recurring theme that they sound reasonable at first glance, but if even the smallest bit of research is done they fall apart. Ironically these comments are often used to signal new information to other enthusiasts. For better or worse they also often contain some off color signaling to other well versed Chainlink investors; a notable comment about a project that is an indirect competitor to Chainlink (Mobius) made reference to a “great project from New Delhi” (which it isn’t) as a reference to that Stanford team’s Indian heritage.

Further research

Properly looking into Chainlink is a large undertaking. Nearly all of this information is present publicly or can be logically deduced from the above. Large corporations are certainly aware of blockchain and the potential it holds to reduce their costs. I would recommend starting your look into Chainlink by watching early videos of Sergey Nazarov speaking about his project, especially back when the project was newer and lips were looser as to long term plans and integrations. Good videos to watch would be:

Sergey at Devcon3
Sergey at CoinCongress
SXSW Smart Contracts
Sergey Q&A Coinfund
Sergey Ethereum Developers Meetup SF
Sergey Bitcoin Devs Seminar SF
NYC Ethereum Enthusiasts Meetup

From there you can go as far as you feel necessary in evaluating an investment.

Use cases for Chainlink

Current generation smart contracts allow for the trustless execution of exchanges that interact with blockchain assets. This is useful in the limited number of cases where all constituents of the deal are blockchain based assets.

Example of current generation smart contract:

- A group makes an initial token offering for a project. They publish code to the Ethereum blockchain that allows customers to send Ethereum to a particular address and in exchange they will receive a set number of tokens for the project instantly and

automatically. This distribution does not require any input from the group and will execute regardless of who sends the Ethereum to the address.

Chainlink allows smart contracts that interact with the real world. Contracts requiring real-world inputs, data or output actions constitute at least 80% of the high value use cases for smart contracts.

Examples of smart contracts using Chainlink:

- Trustless credit default swaps can be written through a combination of access to a public immutable blockchain, an aggregated group of credit raters and access to banking payment APIs. The swap can periodically monitor for sufficient balances in the issuer and purchaser's accounts and periodically aggregate the predetermined number of credit ratings for a given enterprise or bond. If a certain number of the credit ratings drop below a certain rating, the payment can be triggered using the banking API. If credit ratings are not trusted, debt ratios or any other objective trigger can be used. This can be adjusted to be more or less risk adverse by adjusting the number of ratings required to change. Using similar setups, most of the \$600 trillion derivatives market could become automated and trustless, with all participants having a financial incentive to act in a forthright manner.

- Automated dynamic car insurance can use real world data from performance sensors and publicly available tickets records to dynamically adjust rates for a given coverage level. A third party could even be given permissioned access to a driver's car sensor data who would then automatically search for the lowest rate offered for that particular driver's profile. In the event of a claim, publicly available police records combined with car sensor data could trigger a pre-arranged partial or full payment without the insurance purchaser needing to file a claim or trust their insurer to act in a fair manner. This would offer customers to leverage their driving profiles and insurers to protect themselves from risk.

- Automated payment and dispute resolution for oil and gas production is possible by making payments contingent on pipeline sensors reporting flows to central processing facilities. This contract can be made contingent to a blinded third party having access to the processing plant's internal APIs in a trusted environment, allowing for third party dispute resolution in the case of disparate readings from the originator's sensors and the processing plant's. This service could be offered for a small periodic fee or on a per-use basis, again payable automatically by a smart contract. Records of use of dispute resolution could be made public on the blockchain or private within trusted enclaves per the terms of the contract, allowing subsequent market participants to make informed decision for their energy origination and processing choices.

Investment perspective

A few points warrant mention about Chainlink strictly from an investor's perspective. Chainlink is an all-or-nothing investment. If the network launches and becomes the default oracle network for offering paid access to critical real-world APIs and data feeds, it will become as fundamental to modern business interaction as the internet. If the network doesn't work, is killed by regulation or another network becomes the default network, Chainlink will likely fail.

In that same vein, Chainlink is more valuable from a monetary perspective than Ethereum, EOS, Hyperledger or any other smart contract platform. Multiple networks will compete for the on-chain portion of smart contracts. Each will offer a public, immutable ledger and differing incentives to developers, miners, validators and coders. Indeed many enterprises are exploring using permissioned, non-public blockchains. Because of this heterogeneity, there will always be competition in the space.

In contrast, the interface for real world APIs and data feeds is a natural monopoly. The first network to offer the ability to link bank payments, trusted data sources and on-chain smart contracts will be the only one to be used in any scale. There is a significant barrier to entry for each interacting entity which will generally only be undertaken once per entity in order to achieve cost savings. The value of that network will enjoy the same advantages as other natural monopolies.

I will leave you with a prediction: if smart contracts gain widespread use, the overall market cap of Chainlink will be the highest of all DLT. Prices are set by supply and demand. The highest prices are set by a combination of limited supply, held by unmotivated sellers, and buyers with inelastic demand. If smart contracts gain widespread adoption, they could reduce business's operating costs by 2-15%. To a business with a 3% profit margin, this is significant. So significant, in fact, that if a competitor is unable to similarly reduce operating costs, they will no longer be viable. The largest holders of Chainlink will be the founding institutions above. They will be highly unmotivated to allow their competitors into their monopolistic oracle network that stands as the gatekeeper to the modern B2B and B2I smart contract economy.

The eventual price determinant for an amount of LINK sufficient for a high reputation node will be the marginal utility lost by an large multinational enterprise in giving up monopoly access to a network that offers operations savings that are multiples of their current profit margins.

I invest primarily for a living and can confidently say that I have never before come across an investment like Chainlink and doubt I will again in my lifetime.

Conclusion:

This is a brief overview of the Chainlink project as it stands currently, but is by no means comprehensive. As with all investments, read the white paper, do your own research and ensure you understand why you are investing your money. That said,

Chainlink is a necessary component of workable smart contracts and is without any current viable competitors. The team has done an excellent job of securing the necessary partnerships to make a product with immense real-world value. The project has backing from multiple major enterprises who are planning on using it as part of smart contract products. Indeed, Chainlink must succeed if blockchain is to move past mere value transfer to the true killer application: trustless interactions that allow every marketplace player to compete in the marketplace based only on the value they bring.